

AMENDMENTS TO THE CLAIMS

1. (Currently amended) An apparatus for optimizing character string placing, comprising:

means for drawing prospective guide lines as virtual horizontal lines arranged in parallel at regular equal intervals ~~in~~ within a demarcated region so that multiple candidate positions of placing a character string can be formed in parallel within the demarcated region at the equal intervals by the prospective guide lines, each of the prospective guide lines having a length defined by opposite lines among lines that form the demarcated region;

means for selecting, from among the prospective guide lines formed within the demarcated region, specific prospective guide lines that are arranged in parallel and are longer than a longest horizontal segment of an area of ~~a~~ the character string;

means for specifying one of the specific prospective guide lines that is located at the center of an arrangement of the specific guide lines arranged in parallel in a vertical direction;

means for placing the character string along said one of the specific prospective guide lines; and

means for centering placement to arrange the placed character string in such a manner that the distances between the demarcated region segments that demarcate the demarcated region and dots on character string region segments that demarcate the character string region are made uniform.

2-3. (Canceled)

4. (Previously presented) The apparatus of claim 1, further comprising:

means for adjusting placement to move the placed character string vertically or horizontally within the demarcated region.

5. (Canceled)

6. (Previously presented) A computer program product embodied in a tangible non-transitory computer readable medium, the computer program product being configured to optimize character string placement by performing operations comprising:

a first horizontal placement or a first tilting placement on all demarcated regions;

a pull-out placement on each demarcated region in which the first horizontal placement or the first tilting placement cannot be performed, assuming that the character string placed in the first horizontal placement or the first tilting placement has not been placed;

a second horizontal placement or a second tilting placement to place the character string placed in the first horizontal placement or the first tilting placement, and, when the placement cannot be performed because of the character string placed through the pull-out placement, nullifying the character string placed through the pull-out placement hindering the placement, thereby placing the character string through the second horizontal placement or the second tilting placement; and

a centering placement to arrange the already placed character string in such a manner that the distances between demarcated region segments that demarcate the demarcated region and dots on character string region segments that demarcates the character string region are made uniform, after the first horizontal placement or the first tilting placement.

7. (Previously presented) The computer program product of claim 6, wherein the operations further comprise:

an adjusting placement to move the character string vertically or horizontally within the demarcated region, when the character string cannot be placed through the first horizontal placement or the first tilting placement.

8. (Previously presented) The computer program product of claim 6, wherein the operations further comprise:

a replacing placement, after the second horizontal placement or the second tilting placement, to place alternative display objects such as characters, other character strings, symbols, or graphics, instead of the character string that cannot be placed in the first horizontal placement or the first tilting placement, the pull-out placement, or second horizontal placement or the second tilting placement.

9. (Previously presented) The computer program product of claim 8, wherein the operations further comprise:

the pull-out placement again prior to the replacing placement.

10. (Canceled)

11. (New) A computer program product embodied in a tangible non-transitory computer-readable medium, the computer program product being configured to control a horizontal placement, the horizontal placement including the steps of:

locating imaginary guide lines in one of the demarcated regions, said one of the demarcated regions being bounded by demarcated region segments;

aligning an area in a character string region to a reference line of the imaginary guide lines, said area being positioned within said one of the demarcated regions,

wherein said reference line of the imaginary guide lines is between adjacent ones of the imaginary guide lines, each of the imaginary guide lines in said one of the demarcated regions being longer than said area.

12. (New) The computer program product of claim 11, wherein none of said imaginary guide lines intersect any other of said imaginary guide lines.

13. (New) The computer program product of claim 11, wherein said imaginary guide lines are spaced apart at regular intervals, distances between said imaginary guide lines being uniform.

14. (New) The computer program product of claim 11, wherein the computer program product being configured to control a tilting placement, the tilting placement including the step of:

aligning said character string region to the longest one of the demarcated region segments.

15. (New) The computer program product of claim 14, wherein the computer program product being configured to control a pull-out placement, the pull-out placement including the steps of:

placing said character string region in a neighboring one of the demarcated regions;

aligning said character string region to said longest one of the demarcated region segments, said longest one of the demarcated region segments bordering said one of the demarcated regions and said neighboring one of the demarcated regions.

16. (New) The computer program product of claim 15, wherein said pull-out placement is to be executed only when either said horizontal placement or said tilting placement cannot be performed.

17. (New) The computer program product of claim 15, wherein other imaginary guide lines are in said neighboring one of the demarcated regions during said pull-out placement, said area being aligned with a reference line of the other imaginary guide lines.

18. (New) The computer program product of claim 15, wherein said character string region is aligned with the longest one of the demarcated region segments during said pull-out placement.

19. (New) The computer program product of claim 15, wherein said character string region includes a character string.

20. (New) The computer program product of claim 19, wherein said character string is movable vertically or horizontally within said one of the demarcated regions or within said neighboring one of the demarcated regions.

21. (New) The computer program product of claim 19, wherein said character string region has multiple segments, the longest of the segments being said area.

22. (New) The computer program product of claim 21, wherein one of the segments is adjacent to another of the segments, said one of the segments being configured to include said character string and said another of the segments being configured to include another character string.

23. (New) The computer program product of claim 22, wherein said character string is replaced with an alternative display object when said character string cannot be placed within said one of the segments.

24. (New) The computer program product of claim 22, wherein said character string is replaced with an alternative display object when said character string cannot be placed within said one of the demarcated regions during either said horizontal placement or said tilting placement, and

when said character string cannot be placed within said neighboring one of the demarcated regions during said pull-out placement.

25. (New) The computer program product of claim 19, wherein the computer program product being configured to control a centering placement, the centering placement including the step of:

centering said character string between two of the demarcated region segments, said centering placement to be executed after said horizontal placement or said tilting placement has been performed.

26. (New) An apparatus for optimizing character string placing, the apparatus being configured to execute the computer program product of claim 11.